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ABSTRACT

Papers on serial publications presented at the 1986 International Federation of Library Associations (IFLA) conference include: (1) "Scenario for Microcomputer-Based Serials Cataloging from ISDS (International Serials Data System) Records--New Horizons for Serial Librarianship in the Developing Countries by the Availability of Adequate Hardware, Software, and Dataware" (Peter Jacso, Hungary), which presents a scenario for implementing a microcomputer-based online serials catalog in Roman script using Unesco's MICRO-ISIS software, and discusses the four implementation components of hardware, software, dataware, and the knowledge to design and implement computerized library systems; (2) "Electronic Publishing in Japan--The Role of Libraries in the Electronic Information System" (Hiroyuki Taya, Japan), which discusses the growth of channels for information access, the acquisition and processing of electronic publications, the storage of primary literature in machine-readable form, electronic publishing by libraries, and library management; and (3) "Planning for Serials Automation" (Ross Bourne, United Kingdom), which considers the advantages and disadvantages of serials automation as they relate to the nature of serials, the institution and its users, and the automation process. (KM)

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IFLA

1986

IFLA GENERAL CONFERENCE, TOKYO

Division: Collections and Services

Section: Serial Publications

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SCENARIO FOR MICROCOMPUTER-BASED SERIALS CATALOGING FROM ISDS RECORDS: New Horizons for Serial Librarianship in the Developing Countries by the Availability of Adequate Hardware, Software and Dataware

by

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1. INTRODUCTION

IFLA, UNESCO, ISO and several other international organizations, national libraries, particularly the US Library of Congress, have been working for a long time to promote the creation, distribution and exchange of machine readable catalog records. The realization of this idea required enormous work from the beginning as it necessitated international acceptance of standards and recommendations in many aspects. By now, there seems to be some consensus in the library community as regards exchange format, content designation and bibliographic description. Many libraries and international organizations observe for example the ISO 2709 - or better known as MARC - format, apply the content designator advocated by UNIMARC and use the provisions specified in the set of ISBDs. No doubt, there are many who observe only the ISO exchange format and prefer the content designators specified by the UNISIST Reference Manual. No doubt, there are also many who completely ignore any international standard and insist on their own format and content. Standardization still has a long way to go both in the above mentioned fields and in other ones as well, e.g. subject headings,filing rules, etc. Nevertheless, there are many bibliographic sources available right now in machine readable form which could be exploited by a user base much larger than the present one. So far, the distribution of machine readable bibliographic records was limited to the large libraries of the most developed countries. Yes, there are some national libraries in less

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developed countries who also make use of LCMARC, UKMARC, ISDS, CONSER AGRIS or INIS records to create their computerized catalogs and bibliographic databases, but these are the exceptions. Until recently, the cost of computerization was high enough to be prohibitive for all but the largest libraries. Even today, the installation of a mainframe or minicomputer requires several hundred thousands dollars, the building of an air-conditioned computer center, the training of engineers, systems analysts, application and system programmers, operators. The yearly licence fee of a powerful information storage and retrieval software like STAIRS or DOBIS amounts to 14 - 15,000 dollars. If you want online access, you pay the same amount of licence fee for a communications program like CICS for one year, not to mention the costs of terminals, modems and the requirements for a reliable telecommunication network. Even those libraries which use a service bureau for computer processing are paying through their nose, and in most of the cases receive batch products in forms of catalog cards, printed union catalogs which are far from ideal for consulting and maintenance.

But progress has been made not only in standardizing library and information work for exchange of bibliographic data and in setting up large bibliographic databases. Computer technology is developing at a breath-taking pace. At this moment microcomputers can offer the processing and storage capacity which is adequate for the many libraries

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which have a collection of 30 - 40,000 titles. And all this for less than 5,000 dollars. And in no-frills environment. And without a large body of personnel with computer training.

On the microcomputer software side, we have the best news: UNESCO released a very powerful software for bibliographic information management, the mini-micro version of CDS/ISIS which will be referred to as MICRO-ISIS - free of charge for non-profit organizations. Machine readable catalog records for monographs, serials, as well as bibliographic records from abstracting/indexing databases are available at affordable costs or even free of charge. All these give the rationale to focus attention on the possibility of distributing machine readable bibliographic information for microcomputer-based processing by those libraries which have been spectators so far in the field of library automation because of the financial, infrastructural implications.

This paper will first present a scenario to implement a microcomputer-based online serials catalog in Roman script. (It is to be noted that the proposed scenario can be equally applied for creating monograph catalogs and/or other bibliographic databases from different sources.) Following this, a short description will be given about the four components required for the implementation: hardware, software, dataware and knoware.

The paper will conclude with recommendations for a research/development project to promote the distribution and exchange of machine readable serials records for microcomputer-based catalogs.

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2. THE SCENARIO

The scenario outlines the stages of a retrospective and prospective conversion process to create, maintain and use a serials catalog based on

- records derived from the ISDS (International Serials Data System) database and locally created ones;
- IBM PC/XT or fully compatible microcomputers;
- MICRO-ISIS software customized for a serials database, including some extra utility programs being developed.

The scenario proposed is applicable by libraries wishing to create, maintain and search a serials catalog for max. 30 - 40,000 serials titles. This seems to be the best way to qualify potential libraries as it may refer to any kind of library anywhere.

The scenario is not crystal gazing, nor science fiction. It is based on readily available, widely used products and services. References, however, will be made to implications of the most current storage technology, like compact disk read only memories (CD-ROM), which is now being experimented with by many database producers.

Microcomputer-based catalogs are inherently online accessible for data entry, updating and searching, and that offers a method for maintaining and consulting catalogs which is far superior to the facilities of their printed counterparts. Experiments to implement the proposed scenario are being carried out at the library of the Computer Applications and Service Company.

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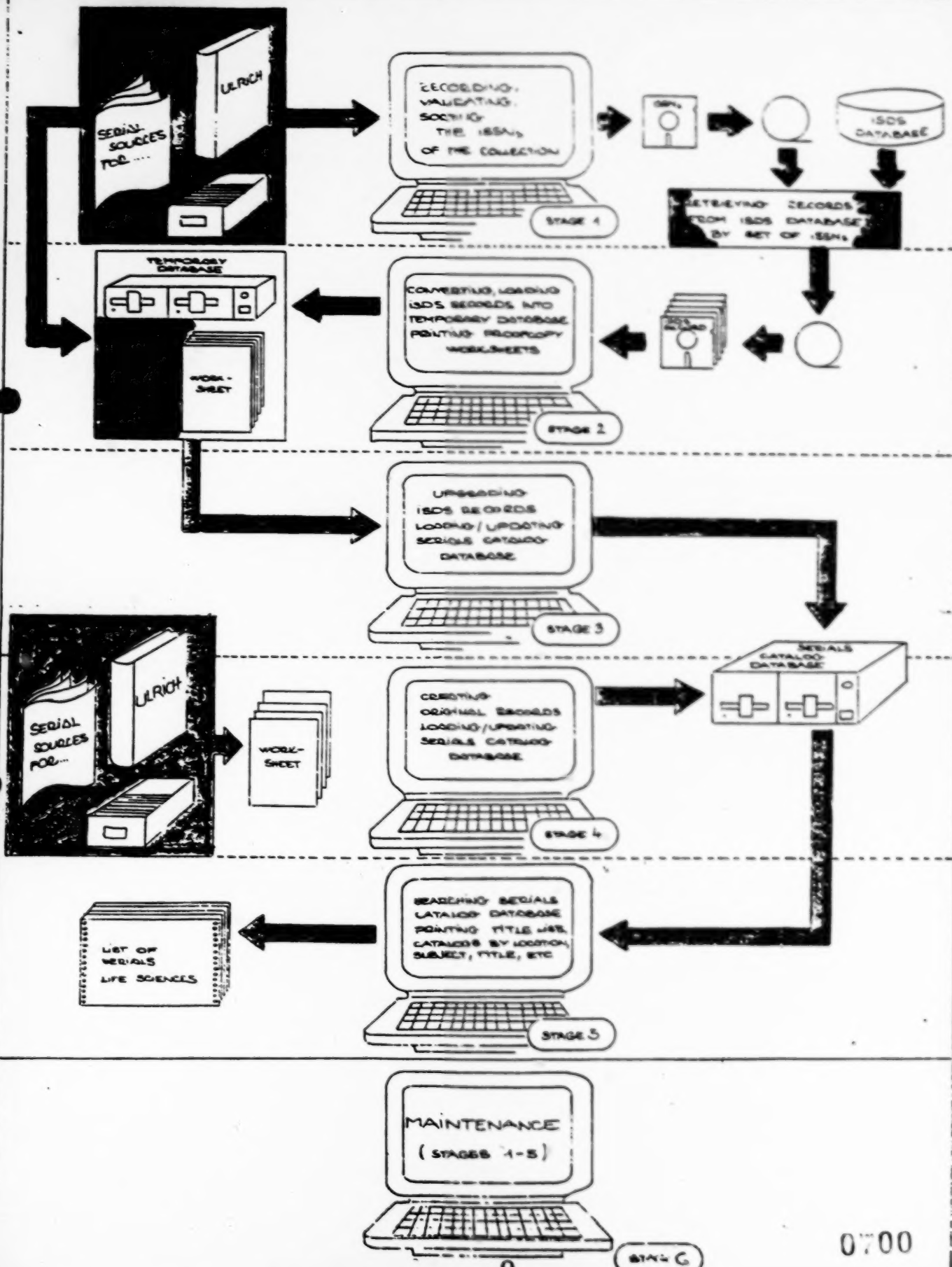
ULRICH
SERIAL SOURCES FOR ....
RECORDING, VALIDATING, SORTING THE ISSNs OF THE COLLECTION
STAGE 1
ISDS DATABASE
RETRIEVING RECORDS FROM ISDS DATABASE BY SET OF ISSNs
TEMPORARY DATABASE
WORK-SHEET
CONVERTING, LOADING ISDS RECORDS INTO TEMPORARY DATABASE PRINTING PROOFCOPY WORKSHEETS
STAGE 2
UPLOADING ISDS RECORDS LOADING / UPDATING SERIALS CATALOGS DATABASE
STAGE 3
SERIALS CATALOGS DATABASE
ULRICH
SERIAL SOURCES FOR...
WORK-SHEET
CREATING ORIGINAL RECORDS LOADING/UPDATING SERIALS CATALOGS DATABASE
STAGE 4
SEARCHING SERIALS CATALOGS DATABASE PRINTING TITLE LIST, CATALOGS BY LOCATION, SUBJECT, TITLE, ETC
STAGE 5
LIST OF SERIALS LIFE SCIENCES
MAINTENANCE
(STAGES 1-5)
STAGE 6

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FIGURE 1 THE SCENARIO

The scenario consists of six stages and is graphically illustrated in Figure 1. It is to be noted that several other steps are also involved which are not mentioned here as time and space does not permit, e.g. backing up databases, creating auxiliary files, etc.

The six stages are described below.

2.1. **Recording of ISSNs on floppy disk**

All computerization work necessitates manual data collection and this one is no exception. ISSNs of the serials must be collected as this is the most unambiguous way to identify serials for which bibliographic descriptions will be requested from the ISDS (inter)national center. Traditional catalogs, KARDEX-files, published lists of journals covered by abstracting/indexing services can be used to collect the set of ISSNs which is then to be recorded from the keyboard of the microcomputer onto a floppy disk. ISSNs will be sorted and validated by program, using the check-digit of the ISSN. Invalid ISSNs are flagged for correction. It is recommended to record a title along with the ISSN (but not necessarily the key title), because it may happen that no record will be retrieved for an ISSN at the (inter)national center from the ISDS database and it is convenient to know by title which serials were not matched. Our experience with different collections indicate a 70% match, or hit rate on the average, i.e.

out of 100 ISSNs 70 will have a matching bibliographic description in the ISDS database. The floppy containing only the ISSNs is to be sent to the (inter)national center where it is converted to traditional half inch tape which is run against the ISDS database. (I know very well that there is no facility at present at the (inter)national center for the floppy-tape-floppy conversion but many service bureaus will happily do that for peanuts on a converter costing 4,000 dollars.)

Descriptive records are retrieved from the ISDS database for the ISSNs supplied, and copied onto floppy disks. (One typical floppy of 360,000 character capacity can hold around 1,000 ISDS records.)

2.2. Creating a temporary database, printing worksheets

On receipt of the floppies by the libraries, the records will be validated for consistency and somewhat reformatted by an extra program to make them convertible by MICRO-ISIS which has a slightly limited built-in facility to convert records in the ISO 2709 format into its own internal format. Preformatting is required because MICRO-ISIS cannot handle for example different subfields if they occur repeatedly within a field. After this validation, pre-processing and conversion a temporary database will be created automatically from the descriptive records. This database as its stands can be used for many useful purposes. You can produce title lists by country of publication, language, status of publication, frequency, etc which is very helpful when you want to set priority for the next stage. Though

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it is theoratically possible to sit by the microcomputer, recall records by almost any criteria and correct, modify the descriptive records, as well as enhance them by cataloging data on the fly, it is much more practical to print out nicely formatted worksheets to allow the staff to do that at desk.

Figure 2 illustrates a possible worksheet to be used for upgrading the ISDS records.

Data elements in boldface type indicate data taken from the ISDS record, those in handwriting indicate data added or modified locally, during record upgrade.

Figure 3 illustrates the

- original ISDS record
- catalog entry printed before the upgrade
- catalog entry printed after the upgrade.

These figures are meant to illustrate the text of the following sections, therefore their skipping is not recommended.

Master file number: **00036**

End date — Country
Start date — Frequency
Publication status — Language
Date entered/amended

Information codes ...	008	^a**840l7**^bc^c**1969**^d**9999**^e**gbr**^f**m**^g**eng**
CODEN	030	^a
DDC	082	^b**629.8**
Main entry heading ..	100	^a
Title proper	245	^g**Current papers on computers & control**
Parallel title	246	^w1^a
Other title info	223	^a
Statement of resp. ..	550	^a
	710	^a
Edition	210	^c
Chron. design.	300	^a*No. 32(1969)-*
Publication	260	^a**London**^b**INSPEC**^c
Dimension	399	^d*26 cm*

*** NOTES ***

Variant titles	246	^w0^a**Current papers on computers and control**
	246	^w3^a**CPC. Current papers on computers & control**
Other notes	500	
Former titles	780	^w0^t**Current papers on control**
		^x**0374-2865**^d*No. 1-31*
	780	^w ^t
		^x ^d
Successor titles	785	^w ^t
		^x ^d
Related titles	787	^w2^t**Computer and control abstracts**^x**0374-2865**
Other lang. ed. of ..	759	^v2^t ^x
Has other lang. ed.	769	^v2^t ^x
Subseries of	760	^v2^t ^x
Has subseries	762	^v2^t ^x
Inset/suppl. to	779	^v2^t ^x
Has inset/suppl.	789	^v2^t ^x
ISSN, terms of avail.	022	^a**0011-3794**^z**0590-4080**^c
Key title	222	^w0^a**Current papers on computers & control**

*** LIBRARY SPECIFIC DATA ***

Status — Agent
Method — Number
Location

Subscription ..... & holdings	800	^l**MAIN**^m**subs**^s**curr**^q**Bumpus**^n*146/69*
		^h*No. 33(1970)-37(1974), 39(1976)*

Figure 2. Planned worksheet for ISDS record upgrade

Original ISDS record

```
008:        840117c19699999gbrm 2p                    a eng
022:          ^a0011-3794^z0590-4080
082:          ^b629.8
210:          ^aCurr. pap. compt. control
222:         0^aCurrent papers on computer & control
246:         0^aCurrent papers on computers and control
246:         3^aCPC. Current papers on computers & control
260:          ^aLondon^bINSPEC
780:         0^tCurrent papers on control^x0374-2865
787:        2 ^tComputer & control abstracts^x0036-8113
```

Catalog entry before record upgrade

```
629.8
Current papers on computer & control
    1969- . - London : INSPEC, 1969-
    Monthly
    Variant title(s): Current papers on computers and control;
                      CPC. Current papers on computers & control.
    Continues:        Current papers on control = ISSN 0374-2865
    Related title:    Computer & control abstracts = ISSN 0036-8113
    ISSN 0011-3794 = Current papers on computer & control
```

Catalog entry after record upgrade

```
629.8
Current papers on computer & control
    No. 32.( Jan. 1969)- . London : INSPEC, 1969- . - 26 cm
    Monthly. - Variant title(s): Current papers on computers
    and control ; CPC. Current papers on computers & control.
    Continues: Current papers on control = ISSN 0374-2865 (No. 1-31)
    Related title: Computer & control abstracts = ISSN 0036-8113
       MAIN     No. 33(1970)-37(1974),39(1976)

    ISSN 0011-3794 = Current papers on computer & control
```

Figure 3. Original records and planned catalog entries

2.3. Upgrading ISDS records

No doubt, this will be the drudgery of establishing a microcomputer-based serials catalog. Each ISDS record printed on the worksheets will have to be proof-read, corrected if necessary, and complemented by local data according to the cataloging rules applied at the library. You will certainly have to correct data elements in the ISDS records. If a journal changed title some months before, you will have to change the following fields: publication status, last year of publication, successor title as the ISDS record may not be up-to-date. You will certainly find straightforward errors, misspellings and other deficiencies and you will have to add your location, holding and subscription data and maybe also the subject headings, notes, etc.

Having said all this, you will still appreciate that the dominant part of your machine readable catalog records could be imported from an outside source, and that you do not have to provide added entries as these can be automatically generated by the program according to your requirements. If at no other time, you will certainly appreciate the above when you have to create complete machine readable records from scratch which is the next stage in establishing your micrcomputer-based catalog.

2.4. Creating original records

It was mentioned above that for certain serials in your collection, ISDS records are not available. If you cannot

identify the ISSN for a serial (either because it does not have one, or does have but the serial does not carry it and other sources do not identify it either) you know from the beginning that you will have to create an original record in machine readable form. It will also happen that you identified the ISSN, still no bibliographic record could be retreived from the ISDS database. It will be your turn again to create a record. It is recommended to use the same worksheet printed to proof-read and upgrade ISDS records but, of course, in this case the form will be empty except for the field labels which help you in preparing the catalog entry. Obviously, creating original records may be done parallel to upgrading ISDS records.

Both the upgraded and the originally created records may be inverted (indexed) right after their completion, or batched together for cyclic inversion. Inverting the records make them searchable, sortable and printable. It is quite possible that you start the work with the currently received serials and when their catalog records are upgraded, you copy them into the catalog database from the temporary one and invert them. You then have a catalog of currently received serials and you may continue with the ones currently not subscribed but known to be published, i.e. active.

Though both upgrading and original creation of serials are basically manual work as corrections and additions are to be marked and complete descriptions are to be prepared

on the worksheets, MICRO-ISIS can ease data entry and modifications. It can present the equivalent of the printed worksheet on the screen and you can easily delete, insert, overwrite any data displayed. It can warn you if you want to enter numeric data in a purely alphabetic field (like place of publication) or if you omit the dash in the ISSN. Obviously, the duration of such a retrospective conversion depends on the perfectness of your manual catalog or register.

Apropos, perfect traditional catalogs. You may have the best catalog entries of the world in your card catalog, you may apply the most consistent rules for choice and form of heading, you will be at loss when searching for a title 'Information Retrieval and Library Automation' remembered as 'Library Automation and Information Retrieval', or when you want to identify, for example, those serials which you cancelled in the last five years. This is where your MICRO-ISIS-based and inherently online catalog is second to none.

2.5. Searching and printing the catalog

If you were discouraged by the previously described phases of the scenario, then you might reconsider it when learning the potentials it offers for searching, printing and updating your catalog. Machine readable records offer enormous flexibility in accessing the catalog and ways of access which were practically impossible in the traditional card,

list or microform catalogs which could provide access points only by the most commonly required search criteria, like title proper, subject heading, classification code.

Instead of further explanation, let me illustrate the facilities by some examples. In addition to traditional searches by criteria mentioned above, you can also formulate the following uncommon questions and get answer in seconds for a collection with a few thousand titles:

a. Do we have anything from a publisher called Meckler?
b. What we receive currently in Spanish about agriculture?
c. Which computer journals ceased publications in the past 5 years?
d. How many cancelled titles do we have?
e. Which are the titles presently subscribed by all our branches?
f. What do we get on an exchange basis?
g. Which are the bi-montly journals in chemistry?
h. What English, German, French or Russian language weekly economical serials do or did we get?

Searching facilities are nearly as powerful as those offerred by large bibliographic utilities. Full Boolean logic is supported, allowing the combination of search terms. Sets previously created by Boolean expressions may be combined with new search terms and/or other sets. Searches can be restricted to a particular field. These restrictions may be applied both to terms and sets, and may be specified

either at formulating the search or a posteriori. Proximity operators can be used for narrowing searches and right-hand truncation is on obvious feature.

The results of the searches can be displayed in several different formats and with different contents which may be invoked by mnemonic names. Full or subset catalogs by subject location, status, language, country or by any combinations thereof may be printed after sorting by a maximum of four sort keys, e.g. classification code, country, title and date. Format and contents of printouts can be predefined, including columnar layout and indentation. Record contents may vary from index entry to full unit entry. Entries can be adequately filed in the printout as specifications can be provided in the records to ignore or replace a given definite article, word or number for sorting, without any trace of it in the printout. These filing specifications are absolutely under user control, thus quite independent of languages and cataloging rules.

It is quite likely that printed catalogs will not be produced at those libraries where this proposed microcomputer-based serials catalog is available. Nevertheless, a library may want to distribute its serials catalog records to other libraries. One way to do that is to produce a set of floppy disks containing the records in ISO 2709 format. This may then be received for further processing by any library which has a micro with a software capable of using outside

records for building, enhancing its catalog database. If it happens to be a MICRO-ISIS based catalog outlined above, it is possible to import into it full records of serials not available in that library, or only holding information for those ones which are described in the catalog of the receiving library. These imported records should then be upgraded in a way as described above according to the cataloging rules applied by the receiving library. A library may still need to print a catalog or subset thereof for those who do not have a computer, nonetheless would like to know about the collection or subcollection of the library. The filing and printing facilities described above will then be very wellcome.

2.6. **Maintenance of the catalog**

Maintenance of a catalog is of crucial importance. Catalog in list and praticularly in COM format are inadequate for updating, though they are likely to become outdated in the moment they are prepared. You can delete entries, modify data and - with serious limitations - add new entries to a title list, but you cannot change a microfiche catalog, just add update fiches which makes consulting the catalog less than comfortable. In the online catalog modifications are made with absolute ease at any time and implemented immediately.

The same procedures apply to the maintenance of the catalog which was described above for upgrading ISDS records and

creating original records in the retrospective conversion. Maintenance is required whenever there is a change in the serial, or you start/cancel a title, or you learn the ISSN of a previously un-ISSNed serial, or you receive records from the ISDS database for previously unmatched ISSNs. You can do this maintenance at any time and your database will reflect it immediately. You may decide to maintain the database periodically and print catalogs after these periodical updates, if printed catalogs will be needed at all.

3. THE SOFTWARE, HARDWARE, DATAWARE AND KNOWARE

To implement the described scenario, adequate 'wares' are needed. These were passingly referred to in the previous chapter, here they will be further detailed. It is strongly emphasized that none of the components are perfect but all of them are adequate.

3.1. The software

There are many so called library software packages available on the market for microcomputers but few can meet the requirements inherent to creating, maintaining, searching, sorting and printing/displaying catalog records. The mini-micro version of CDS/ISIS developed by the Library, Archive and Documentation Division of UNESCO comes very close to the ideal, and it does so free of charge for qualified user communities. This software is referred to as MICRO-ISIS in this paper for simplicity. It is the younger sibling of the mainframe CDS/ISIS package (also from UNESCO LAD) which has been in use throughout the world. One particularly relevant CDS/ISIS-based application for this audience is an online serials union catalog developed by this author and his programmer companion, András SZŰCS for a documentation center in the Middle East recently. This software which can run - among others - on IBM Personal Computers and fully compatible microcomputers is a very powerful program for managing bibliographic information,

and offers the same or better facilities than those available in commercial library programs selling for some thousand dollars. It is important to know that MICRO-ISIS is a sort of a framework program which the user must customize for the particular application by defining the structure of the database, the format and content of inputs and outputs, the algorithm for index generation and sorting, etc. Time and space do not permit here to go into details, therefore only the most important features relevant for the serials catalog application will be mentioned, along with the deficiencies of the software.

The software can handle variable length records whose maximum length is of 4,096 characters which is sufficient for the longest catalog record with detailed holding statements. Records may consist of maximum 1,000 fields which are identified by a 3-digit tag number. Fields which are also of variable length can be further divided into subfields, identified by a 2-character subfield delimiter and subfield code. Fields may occur repeatedly in the records which is very convenient for multi-valued fields, like variant titles.

Records may be entered either directly from the keyboard of the microcomputer or from a batch file on the disk which may be created by converting records in the ISO 2709 exchange format, like for example, ISDS.

Both word and phrase indexing are possible. The user may decide to index, for example all words in the key title, or the key title itself as a complete index entry, or in both way. Compound subject headings may be indexed as such or on a word by word basis. It may be specified to index for only the first or for all occurrences of a field. The excellent searching and printing facilities have been described earlier in detail.

There are also deficiences of the software; it lacks some facilities which would be required for perfect serials cataloging but these are likely to be implemented in the forthcoming updates. The required enhancements include:

- global change facility to convert for example all 'ukn' country codes to 'gbr' in the ISDS records where they appear inconsistently;
- conditional print statements to check semantical intra-record inconsistencies and print messages if they occur, e.g. a serial which is indicated to be active may not have a value other than 9999 in the field used to indicate the last year of publication;
- validation of data against authority files, e.g. abbreviations in key titles, subject headings, classification codes, etc.;
- arithmetic logical operations on numeric fields and string search on non-indexed fields;
- table look-up for codes to insert their textual equivalent in

the printout, e.g. to store the code 'm' in the record for frequency but to print the text 'monthly' in the output;

- use of different repeatable subfields, e.g. in the publication area to adequately handle successively occurring places of publication and names of publishers;
- use of see references at added entries instead of unit entry, e.g. from parallel title to title proper.

Most of these facilities are available in the mainframe version so there are good chances to have them soon in the mini-micro version. Until that most of these requirements can be met by writing special programs to pre-process the incoming records before submitting them to MICRO-ISIS.

3.2 The hardware

MICRO-ISIS may run - among others - on IBM PCs which is good news as IBM is the de facto industry standard. IBM microcomputers and fully compatible other micros are easily available and serviceable, they do not require any special environment to operate.

The minimal configuration required is as follows:

IBM PC/XT
512 Kbyte RAM
10 Mbyte Winchester drive
360 Kbyte 5.25 inch floppy drive
Monochrome monitor and keyboard
Dot matrix printer with downloadable character set.

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This configuration can be acquired for less than 3,000 dollars at the time of this writing, and the price is certain to decrease. This configuration can accomodate approx. 5 - 8,000 serials catalog records together with the index file. The actual number of records which can be stored depends on the level of description chosen, by the detailedness of the holding statements and the number of access points, i.e. data elements to be made searchable. The average length of an ISDS record is 350 characters but this may be doubled after upgrading it by subject headings, numbering and chronological designation data, location, holding and subscription information. Indexing by words in the key title or in the title proper of the current, former, successor, parallel titles by classification codes, subject headings, language, country, frequency, status, first and last year of publication, location and subscription status code, ISSN may easily add 100 - 130% overhead per record. But the disk capacity can be easily expanded by let say a 30 Mbyte hard disk which will quadruple the capacity for around 600 dollars more. The response time on such a configuration would not be more than a few seconds even for a search with multiple criteria. Removable hard disks with 20 Mbyte capacity are coming strongly, as well as CD-ROMS, digital compact disks which can be only read but not written onto by the user, therefore they have implications mostly for receiving the complete ISDS database from which records could be

retrieved and copied onto writable disks where records can be modified and upgraded. There is a limitation to be noted as regards the special characters. In addition to the basic Latin alphabet, some accented and other diacritical characters may be displayed on the monitor which mostly satisfies catalog records in French, English, German, Italian, Spanish, Dutch, Portuguese and Scandinavian languages but serials to be described in other languages of Roman script may face problems as some special characters needed are not available in the standard character set of the IBM PC.

To quote an example from Hungarian: certain vowels are accented by both the double acute, like ő and the umlaut, like ö. The latter is available in the IBM character set of the display and can be produced by key-combinations. Now, you either make a compromise to accept the umlaut o (risking criticism from your learned patrons and even producing some unwanted vulgarism due to substitution of ő by ö), or you get a character generator custom-designed to your requirements for 150-200 dollars.

May I kindly remind you that even the compromised solution is far better than we had with our ubiquitous IBM 3278 terminal attached to the IBM mainframe which was capable of displaying only the basic Roman character set. This may be acceptable in French, Italian and Spanish where accents are not that much essential as in Hungarian, or

Turkish where words without and with accents have totally different meaning. Just one example: koszoru means wrath, köszörű means grinder.

Printers with downloadable characters are less of a problem because extra characters may be designed in a dot matrix structure, assigned a code and printed using their equivalent code in the record; or the printer can be instructed to make a back-space and print the specified accent on top of the previous character. However, be prepared that these characters will not likely to be nominated for the best calligraphy award as they must be squeezed into the same size as unaccented characters.

All in all, the standard hardware is adequate for a large number of libraries and it can be customized according to local requirements rather easily and inexpensively.

3.3. The dataware

There are several serials databases, machine readable serials catalogs where records could be retrieved from to create the microcomputer based serials catalog. These include: USMARC-S, UKMARC, CONSER, ULRICH to name a few. This scenario proposed is still based on the ISDS database for many reasons. Apart from its tenth anniversary of official establishment in January 1976, ISDS deserves special attention among the serials databases. It has the largest collection of machine readable serials records, now approaching the 300,000 mark. These records are

received from the national libraries of those countries where the serial originates from, so it may be expected to have authentic description (true, this expectation is sometimes wrong). It has a very large source base both in terms of countries and of subject coverage. It has an uncommonly comprehensive network of national centers without geographical and political limitations. The International Center has been cooperating with the national centers for a long time by receiving descriptive records of serials and distributing the accumulating register of serials on microfiche and magnetic tape to libraries all over the world. Though free of charge for national centers, magnetic tape service must have been limited due to the previously discussed requirements for processing the tapes for printed or microform catalogs and registers, let alone for online databases. The advancement of technology now makes it possible to radically extend the user base of the ISDS file by natioanal ISDS centers and via them by individual libraries, and also by libraries in countries which have not yet joined the International Serials Data System, as products are available for anyone interested.

The number of libraries making use of the ISDS database might mushroom if selective records service is made available on floppy disks which are the same data carrier for microcomputers as have been magnetic tapes for mainframe and mini computers. The format standardized for bibliographic

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information interchange on magnetic tape applies equally well for floppy disks. The typical floppy can hold 1,000 ISDS records but its capacity keeps increasing and for the IBM PC/AT floppy drives one disk can hold nearly 4,000 ISDS records. For national libraries wanting to create union serials catalogs for 100,000 or more serials held at several hundred libraries, computerization still implies tape service and large computers. But in those countries the tape-to-floppy conversion could be undertaken by national libraries who could themselves distribute either original or upgraded ISDS records on floppies to allow libraries with a collection of - let's say - maximum 30,000 serials to build their own microcomputer-based catalog. And let us not forget that there are many countries where the total number of different serial titles held by all libraries taken together does not exceed 30,000. There a complete national online catalog of serials can be implemented on a microcomputer. Small is beautiful if not forced to wear Gulliver's boots.

Yes, CD-ROM. This is the talk of the town. Nearly 600 Mbyte capacity which can hold the complete ISDS database together with an index file to all possible data element of the records. On one tiny compact disk. True. But equally tru is that CD-ROM players are relatively expensive, the file format on the disk is not yet standardized; there is not yet a large enough user base for receiving the complete

ISDS database on compact disk (producing less than 1,000 copies may not be economical at present); there are massive additions to and corrections on the ISDS database being done this year. Wait one year from now to see the prices go down (Library Corporation of Washington D.C. has just announced a CD-ROM player at the unbelievable price of 690 dollars!); the file format standardized (committees in Europe and the US keep working on it); the PC-DOS operating system to handle CD-ROM files directly (a new version is rumoured); the ISDS database to consolidate following some new conventions and interpretations agreed upon this Spring. CD-ROM distribution can then be reconsidered and likely to be found worthwhile.

Having said all this, ISDS is a good source for creating serials catalog. It can save enormous time in the retrospective conversion by providing the core of a machine readable serials catalog via the bibliographic descriptions of nearly 300,000 serial titles. Sure, the database is not perfect. Diacritic characters are not consistently used, tracing former and successor titles may not be always complete, some descriptions are not up-to-date. My most serious complaint about the records in ISDS is that they do not contain numbering and chronological designation data, though these could have been identified the most reliably by the national center of the country where the first issue of the title was published, and this is not

only a mandatory but also a very important data group (as opposed to the dimension of the serial which is also mandatory, also omitted in ISDS records but far less important). Those who have to find authentic numbering and chronological designation for serials would be - I bet - more than happy to trade in the 'coverage by abstracting/indexing publications' field for the former one.

3.4. The knoware

The American Heritage Dictionary may not contain this word but it was too difficult to resist the temptation of coining it on the analogy of the well accepted terms: hardware and software. The word may be new but not the concept it refers to. Library automation requires not only hardware, software and data but also a team of computer and library specialists who have the knowledge to design, specify, implement and operate computerized library systems, making use of the above components.

To implement an online serials catalog system on a mainframe computer still requires quite extensive knowledge of the hardware, the operating system, the file management program, the telecommunication software, the application program and of course, the application itself. Therefore, it implies the cooperation of a number of specialists.

With the advancement of PERSONAL computing, there is a tendency to provide application programs whose use require only common sense and intelligence. This is typically the

case with wordprocessing programs where the user sets the layout and paging parameters, then off s/he goes with the text itself. Database management and information storage/retrieval programs still require some computer literacy even on microcomputers, and MICRO-ISIS is no exception. As was mentioned above, it is functionally an appalication generator which the user must customize for the given task by specifying the structure and content of the records, the display and print formats, the indexing and sorting method in a programming-like language. This might be discouraging for those who do not posses some computer literacy. Distributing the MICRO-ISIS software and subsets of the ISDS database would be far less efficient than developing the kit of a software customized for serials cataloging from ISDS records according to - let's say - AACR2, along with a manual explaining the related procedures and conventions. In such a way a large part of the related knoware could be built in and made transparent for the user, who would then need only a minimal support from a 'computerist' to learn how to use the keyboard, insert the floppy, invoke the programs.

No doubt, this would slightly limit the flexibility offerred by the underlying software because the options are mostly pre-selected, formats and structure pre-defined, but these would be done in accordance with generally accepted and favoured conventions, hopefully satisfying a large number

of users. Those serials librarians who happen to be computer specialists would still have the option to generate their own version of MICRO-ISIS or write their own programs for managing microcomputer-based serials catalogs. But they are likely to represent a minority in serials librarianship, yet.

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4. CONCLUSIONS, RECOMMENDATIONS

The proposed scenario may open new horizons for serials librarians in the very near future. It can dramatically increase the user base of ISDS machine readable records which have been created by many efforts in the past years. It may provide incentives for computerization of those libraries which could not afford the expenses associated so far with receiving machine readable ISDS records. It may offer a solution to those who have or could have access to IBM (or fully compatible) microcomputers, but did not know what software to use, or were discouraged to automate because of the belief that machine readable records are available only for the mainframe or minicomputer users.

The international organizations and some national libraries have done much to promote library automation. I assume that it may be worthwhile to initiate a project to further study and test this scenario. The project would consists of the following phases:

1. Customizing MICRO-ISIS and preparing complementary programs to receive, check, convert and upgrade ISDS records, to create original records for the creation of microcomputer-based serials catalog according to a given cataloging rule, e.g. AACR2;
2. Preparing a manual and a menu-driven turnkey software package (i.e. a kit) which would allow serials

librarians minimally familiar with using microcomputers to realize the steps described in the scenario;

3. Testing this kit of the manual and software package by selected libraries for adequacy, ease of use, etc.;
4. Finalizing the kit of manual and software package on the basis of the test results and their evaluation;
5. Demonstrating the kit for representatives of national ISDS centers at the General Assembly of ISDS, propagating the use of the kit via publications in appropriate journals and conference papers.

This project could be realized in a two-year period if adequate human and financial resources were available and could lead to mass distribution of ISDS records and to the computerization of serials cataloging at many less affluent libraries all over the world.

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Electronic Publishing in Japan; the role of libraries in the electronic information system

by

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1. The concept of electronic publishing

Electronic publishing is a form of publishing not by paper but by electronics. Communication by paper has ruled over the history of the social communication since the invention of the printing press. But it has been superseded by electronic media through the development in electronics, computers, communication technology and micro-electronics. Though electronic publishing has so far not attained its full-fledged growth, it has a strong possibility of growth and development as a means of information communication.

Electronic publishing is a broad concept including many media, such as fibre-optics, communication satellite, value-added-network, (these are communication facilities), online database services, videotex(Japanese representative system is CAPTAIN), teletext, personal computer network, CATV(these are communication media), optical disc, CD-ROM, software for personal computers, IC card, optical card(these are package media) and so on.

2. Present state of database services in Japan

The development of database services in Japan has lagged behind U.S. and Europe for a decade. So far, we, Japanese, have not regarded the value of information as indispensable resources for man's cultural, industrial and social life. Consequently, we were not eager to organize and exploit information in general. In addition, we do not have the habit of keytyping, and there were difficulties in machine processing of Japanese characters. All these are the factors which have hindered rapid development of databases in Japan.

It was only in late 1970's that the first commercial database service was launched. At present, more than half of the commercial databases available in Japan are from

overseas. But now that there is little difficulty with machine processing of Japanese characters through wide use of Japanese wordprocessors and computer photocompositionings, we can anticipate the growth of Japanese databases.

There exist close relations between library services and databases. Database is one of the form of electronic publishing. More than that, it is no exaggeration that electronic publishing was started as database and that most of electronic publishings are applications of database.

3. The growth of channels for information access

Many information systems have rapidly grown since a few years ago. At present, a number of information systems such as videotex, teletext and VRS(Video Responce System) are in operation(some are under experimental stage, though). These systems are fundamentally database-typed system. Further, there came to appear new package media such as optical disc(including CD-ROM version) and software package for personal computers. Optical disc and CD-ROM can be used as mass data storage media for online database services and as package media for database distribution. Moreover, communication network services have increased. Personal computer networks and value-added-networks are now available in Japan. Using these networks, users can search various databases. Those above media are the products of the age of electronic publishing. Here I would like to talk about some of the characteristics of these media as found currently in Japan.

- Communication media -

Videotex: Videotex is a system by which users can make access to the central database, using telephone line and home TV set. A representative system in Japan is CAPTAIN (Character and Pattern Telephone Access Information Network). Following an experimental

service since December 1979, commercial service began in December 1984. At present, CAPTAIN supplies 9,000 customers with 166,000 pages of information. The number of information providers is about 550.

VRS(Video Responce System): VRS is an interactive broadcasting system that has been tested since 1977. It is capable of transmitting not only static images but also motion pictures. Now, it is under experimental stage, but is expected to develop as a central system of INS(Information Network System). This system has information retrieval capability to external databases as well.

Personal Computer Network: This is a telecommunication network in which users can exchange their information, using their own personal computers through telephone lines. Commercial operation began in 1985 in Japan. There are several networks which can be used for electronic mail, public bulletin board, information retrieval, and many types of information exchange services.

Teletext(Character Broadcasting System): This system is a kind of broadcast which transmits text with TV signals and fills unused lines of TV. Users can select necessary information pages, but the total number of pages is quite limited, and the flow of information is always one way.

Up to now, libraries have not made use of those new telecommunication systems yet, nor even investigated into possibilities of a new service. However, as people have become quite accustomed to using these systems, libraries will sooner or later accept them and think of their new role under such new circumstances.

- New package media -

Optical disc: It is capable of storing both coded information and image text in large quantity. Therefore, it can be used as mass storage device for computer external memory and mass data storage file. Optical disc players have already begun to be used as

one of office automation machines within the office. Libraries must notice its great possibilities for the storage of primary information. For example, even one commercially available disc can store almost 80,000 pages of printed text.

CD-ROM: Compact version of optical disc. Unlike optical disc, the standard of CD-ROM was established internationally and its prices are quite low. Therefore, it is expected that not only libraries but small offices and homes will take advantage of this new media. This is quite an appropriate media for the distribution of database not by online but as a package.

Optical card: This media has not yet been put on the market; it can store 800 pages of printed text on the same size of ordinary credit card. It could be used as portable flat-typed display devices will be developed.

Such media have already started distributing information which was only available by printed media.

For example, "Grand Encyclopedia" which is a leading encyclopedia in Japan published by Heibon-sha and the text of seven glossaries including "New Economic Terms Glossary"published by Nihon Keizai Shinbun-sha(Japan Economic Newspaper Co.) are now available online by use of online information network named Nikkei Telecom. Articles of such leading newspapers as the Asahi Shinbun and Nihon Keizai Shinbun are also available online. And several dictionaries, reference books and databases are distributed in the form of CD-ROM.

In Japan electronic libraries will be emerging through development of electronic publishing. One is planned by the group of private enterprises such as Asahi Shinbun-sha (Asahi Newspaper Co.), Dentu and NTT(Nippon Telegram and Telephone). According to the Asahi newspaper, they plan to store the text of 20 or 40 newspapers and 600 journals electronically and to transmit it to user's personal computer or facsimile receiver on user's demand. Another is planned by the Ministry of Postal Service, but its definite outline is not concrete yet.

Libraries in Japan have not joined the planning of such "Electronic Library" as yet.

Hence I would like to suggest some of the roles to be taken by libraries in the electronic information system with due regard to the circumstances of Japan and advanced countries.

4. Acquisition and processing of electronic publications

The library has traditionally acquired printed materials, stored them, and provided them for its users. Since printed materials have had predominant influence over academic, social and cultural life, it has been impossible for libraries to perform their functions without them. Now that information is not only distributed by printed paper, but also by electronics, they have to acquire information and materials by electronic media, too.

Package media are similar to books and journals. So libraries have to acquire them positively. Especially, the deposit library of a country should acquire them as legal deposit publications.

As for online databases which have particularly high public value, libraries should make them available to their users.

If possible, libraries should acquire files of database on tape or disc. It would be unnecessary for all libraries to acquire and store them. It is also the role of the library to acquire and store the initial data, because the database contents are quite liable to change, and the data that were once changed are lost forever. Libraries should also have interest in retrospective database which commercial services discontinue to distribute.

Libraries should study the ways of preserving electronic media since the life span of electronic media is shorter than that of paper. If necessary, they should change the format from one media to another.

It is necessary for libraries to make bibliographic control over the electronic media like books and journals. Cataloging codes for package media should be developed and a proper directory of online databases has to be prepared.

5. Storage of primary literature in machine readable form

It is obvious that the user needs for primary literature will increase as a result of online database service.

Growing use of wordprocessors and computer phototypesettings facilitates the production of machine readable text. Both publishers and printing companies will hold a large number of literature in that form.

Thus some part of such electronic literature will be distributed by a private enterprise or a consortium of enterprises, bypassing the libraries.

At the very beginning, only a small part of such electronic resources would be supplied on line. Most of other literature would be sent by mail in the form of printout from database. Or if the pages of the literature are a few, or the requests are urgent, such pieces of information would be sent by facsimile transmission.

The media holding the same contents will be diversified. That is, database output would be printed on pages which are to be bound as books or journals, and the same database would be accessed online through personal computer network, videotex, or CATV. Furthermore, it might be distributed in the form of CD-ROM, floppy disc or optical card and so on.

Some libraries have already provided bibliographic database to their users. But it would be difficult for libraries to play the role of distributing commercial databases, particularly in the case of full text database. However, if an appropriate system is established whereby a proper portion of user fees can go to database producers, it would be then possible for libraries to supply commercial databases to their users.

6. Electronic publishing by library itself

Libraries should investigate the ways of producing database, both bibliographic and fulltext, especially for the resources which have high academic values but are not popular enough for the private enterprise to produce and maintain.

Most academic publishers and societies can not afford to develop and manage electronic publishing system due to lack of financial, personal and technical resources. So it might be possible for libraries, particularly national or large academic libraries, to play the role of a center for such academic institutions by offering its expertise and other supportive assistance.

Not only making accessible the machine readable texts which are made by external institutions, libraries should explore the possibility of storing their own collections electronically in the mass storage media such as optical discs.

National libraries or similar libraries should take responsibilities for retrospective conversion of domestic literature into machine readable form, not only for the purpose of preserving library materials but for the enhancement of information availability of their own country.

For the mass input method, perhaps using dither to convert text information into image information would be more prevalent than using OCR scanner, which is to convert Japa-

nese-typed characters to coded information in Japan.

It is highly desirable not to violate the right of private business by establishing an appropriate system through the copyright arrangements or constractural agreements. Libraries should be one of the important components of infrastructure for the electronic information flow in the country.

Each library should demonstrate its characteristics in the electronic environments by focusing its scope and holdings. For example, it is desirable that a public library in the industrial district would maintain and provide electronic resources on industry and environmental pollution for its users, while a special library of an iron industry association would maintain and provide iron related resources electronically.

In spite of enhancement of each library's characteristics, there should be organized a large network of such libraries, since users do not have to consult several libraries or library systems.

7. Internal management of the library

The library has two basic functions. One is to conserve and preserve the literature, another to provide it to users. These two functions are sometimes contradictory, because frequent use often damages materials. But if we change paper materials, especially what are used frequently, into machine readable form, the original text might be better preserved.

In the electronic environment, it is unnecessary to have paper journals bound for frequent use. It would be rather better to make soft(simple) binding of them or not to bind them, because the text of journals which are in much demand would be supplied in electronic form.

Libraries should be free from strict restrictions on cataloging codes and arrangement rules in the age of card catalog. Libraries should turn their focus from conventional trivialities to availability of wider channels of access for their users.

As users usually want to read particular articles of a journal, it is more important to index articles of the journal rather than its title itself. In future electronic delivery, it would be unusual to deliver a whole issue of a particular journal.

Libraries have been comparatively indifferent to external databases. We should, however, regard them as important as books and journals are. Before subscribing to any indexing and abstracting services or purchasing reference books, libraries should consider availability of their electronic equivalents. They should make cost effective analysis between these two media.

It would be a waste of efforts to convert texts which no one or few persons will request. So libraries should undertake user studies to identify more frequently used materials before trying to convert the materials indiscriminately.

It is almost impossible for a small library to produce and maintain a database. But by linking to a large system or network, the small library is capable of expanding its ability greatly.

In the electronic environment, the social value of the library as a center for information would be greatly enhanced. The functions of the library should not be considered static. Under such circumstances, the library would be an institution which is responsible for not only printed materials but also the flow of information.

In concluding, no one can expect that the change from paper to electronics will happen all of a sudden. More and more information, however, has been distributed by

electronics. So we can hardly imagine that we could maintain our services without it. Using electronics, we can improve our services greatly.

We must recognize that the library is not an isolated place in the society, but one inextricably combined with social advancement.

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PLANNING FOR SERIALS AUTOMATION

by

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PLANNING FOR SERIALS AUTOMATION

There is an unfortunate tendency on the part of librarians to come to conferences such as this one and present papers about systems or operations they have planned but not actually yet implemented. Sometimes when these systems do get implemented they have to be modified, because as originally designed they do not work, or the money runs out, or circumstances change, or perhaps a combination of all these things. Sometimes, indeed, the system never gets beyond the planning stage, but nevertheless there it is in the literature. This happens at IFLA, unfortunately, just as much as it happens at national conferences; so, despite the fact that I am currently heading a project that aims to implement automated serials control at the British Library in a phased programme over the next five or so years, I do not propose to tell you about our plans. When - or perhaps I should say, if - the British Library has something to show, and it works, then I or someone else will be happy to share our experience. Until then, we shall keep our plans to ourselves. Instead I propose today to talk at a rather more philosophical, less technical level about the process of planning; and although my experience at the British Library will obviously colour my views, I shall attempt to generalise these beyond one, admittedly very large, but perhaps not so typical, research library.

Why automate? What advantages are there in automating the processes by which we add serials to our collections? What are the disadvantages? Some of these, both advantages and disadvantages, are inherent in the nature of serials, some relate to the institution for whose users the serials collection is maintained, some have to do with automation itself. Let us look at these in turn.

A serial is a serial because it continues under a common title and is intended to provide a regular readership with up-to-date news and information on a particular field of knowledge. However, that readership varies, or the field of knowledge shifts, or the economic circumstances in which the serial's publisher operates change. Perhaps the subject becomes too large for the serial and the publisher

has to produce it more frequently or divide it into two or more journals; perhaps the readership contracts and the publisher has to make the serial more attractive by giving it a new title; or perhaps it becomes too expensive to produce so it is sold to another publisher or maybe closed down altogether. These are just a few of the large number of situations which might happen and which affect the accessibility of a serial; and the serials librarian needs to be aware of these changes in order to provide a proper service. Traditionally, the arrival of serial issues has been recorded on commercially-available record cards such as Kardex or Kalamazoo. A large number of these can be stored compactly in cabinets, albeit that these are not especially portable, and provide ready information about the receipt of previous issues, the routeing order, payments information, and so forth. Serial titles, however, may be difficult to determine and the accessibility of these card files will be limited by the knowledge and experience of the library assistant, the comprehensibility of the title information as displayed on the issue - it may be in a foreign language or an unfamiliar script - and the farsightedness of the library in providing alternative access points for difficult titles. The claiming of issues which have not been received when expected may be spasmodic, probably depending upon the assistant discovering a gap when the next but one issue is received, and probably too late for the missing issue to be supplied. But even if libraries do go systematically through their manual records, say every six months, or according to some kind of colour signalling system, is this necessarily the most effective way to keep records, and the collections they represent, up-to-date? Is there not a case for automatic handling?

Let us now look at our institutions and consider how automation has affected them. In the 1960s when library automation was relatively new, computer installations were large and when housed within the institution of which the library was part, such library applications as existed tended to take place in off-peak periods. During the 1970s early automated systems for cataloguing and circulation were replaced by more sophisticated systems and the scope for co-operation amongst libraries increased. As in other areas of our society, libraries which had

automated discovered that a return to manual methods was unthinkable if not impractical. That is not to say that automation was not without its problems; but new facilities had now become available, for example flexible access to bibliographic records, better management information, improved awareness of overdue loan items. And what is more, libraries had the potential now to communicate with one another, machine to machine, for interlending, for exchange of bibliographic records, for co-operation in collection development; and hence the means, the protocols and standards for such communication developed. At the same time, the capacity of hardware was growing in parallel with decreases in costs. Just as the individual and the family could have its own microcomputer for domestic purposes, so libraries, previously the poor relation in their own institutions, were now able to exercise control over their own automation programmes; and librarians started to develop systems and programming skills. It became feasible to automate all processes, to use the expanding potential for automation to encompass all areas of the service, employing the same bibliographic data throughout. Co-operative programmes such as CONSER and ISDS for serials, ESTC for eighteenth century publishing, the Linked Systems Project and UNIMARC for overcoming systems incompatibilities - these have all developed in response to the need for libraries to communicate information to one another at the institutional level.

What of automation itself? We have seen that library applications started with the opportunistic and have developed into the dependent. Libraries like other users have suffered from the growing pains of an industry which in the course of only three or so decades, and especially in the last six or seven years, has penetrated every corner of our society; but because of the way in which the technology has developed and the competitive nature of the industry, with its consequences for stability of personnel, it has become increasingly difficult for the non-expert, or indeed the expert, to be as fully informed as might be desirable. Just as the manufacturers of the hardware and the designers of the software are busy trying to keep one step ahead of their competitors, so the suppliers of

services to libraries, including library consortia as well as commercial suppliers, are caught up in the race; hence the great variety of products on the market - GEAC, OCLC, URICA, CLSI, and all the rest. What is the librarian to choose? Can we depend upon a supplier remaining in business; because it he doesn't, we may find ourselves in serious trouble, like a cook when the gas or electricity fails.

Another aspect of our growing dependence upon automation is that despite the fact that a considerable amount of what used to be called number-crunching goes on in library computing, at least in our larger libraries, our influence on the manufacturers and designers, and particularly on the development of communication protocols, is small compared with that of the large corporations, financial institutions, airlines and governments. There is, as I have said, a growing number of librarians with systems or programming expertise, so at least our control may be stronger than it was in the early days of automation, but there is a long way to go before there is influence as well.

What I have been saying so far is that the future is very much with automation, whether we like it or not, and serials control is part of that future because it cannot be isolated from other library activities. We have, then, to adapt ourselves and ensure that we, as serials librarians, are in control; but to do that it is necessary to understand something of the environment in which we operate. I divide this environment into three areas, political, technical and human, and I will address each of these in turn.

Firstly, the political considerations. The library, however it seems to the people working inside, will be perceived and judged by the quality of its services. Demarcations between different parts of the library will probably be less apparent or meaningful to the outsider than the insider, and an even standard of service will be expected wherever the user happens to go. On the other hand, the distinction between serials and monographs is likely to be imperfectly understood: the user wants information and is not especially concerned about the way in which it is published - indeed, the user may be more concerned that the information is in print format rather than microform than whether it appears in a serial or a

monograph. Separate serials departments are to be found in many research libraries; but other than the practical problems of handling subscriptions and maintaining records of receipts, are the philosophical differences between serials and monographs that important that they should be allowed to outweigh the convenience of bringing like-functions together, such as selection, cataloguing and financial control? In terms of automation, planners should be ensuring that the adoption of automated serials control is in harmony with other aspects of the automation programme, for example name authority files, online public access catalogues, bibliographic data for circulation control. In presenting itself as a coherent and articulating organisation - and blurring the difference between serials and monographs could therefore be a deliberate policy - the library should be aiming to increase public respect, which it is hoped may ultimately be reflected in improved funding.

Another aspect of this issue is the fact that in a growing number of ways libraries no longer have a monopoly of the sources of information: there is the prospect of controlled and limited publication of learned and technical papers in electronic form, affecting our document delivery systems; the existence of information brokers, offering value-added or premium services, competing with our understaffed enquiry points, and what is more setting a price on what libraries have traditionally provided free of charge; commercial bibliographic listings; and online information retrieval systems, accessible through the domestic television set. There is a market for all of these services, and what is more, people are prepared to pay for what libraries used to provide either at a small charge or entirely free: one might ask why it is that with such a market libraries have not recognised the potential and grasped it. Libraries, and especially publicly-funded libraries, do not possess a monopoly on information, and have to justify their use of public money by the quality of their services and professional dedication of their staff; the coherence of the overall service is an important factor in this, and there should be no justification for introducing divisions based on the accident of form.

The political environment may be difficult to penetrate or influence; the librarian

ought, however, to be in control of the technical environment. Ultimately, we need to understand what the purpose of a particular process is, and where that process stands in relation to other processes. If we understand why we do something and how it fits into the general picture, we ought to be able to argue with some authority with the automation experts. But first we need to define our own objectives, our targets. If automation is inevitable we have to be very sure of our ground and understand exactly what we are doing and why we are doing it. We may want to debate the inevitability of automation later, but I am reminded of the music-lover who resented the introduction of the long-playing record because he actually enjoyed getting out of his chair every few minutes to turn his old 78 records over. I fear that there will be compromises with automation, however, because there is not enough money, or the cost of one particular sub-routine is out of proportion to its value, or maybe we do not make ourselves sufficiently clear. Let us at least set our objectives and decide how we should aim to achieve them; may I propose some, which might be appropriate in many cases:

- a major objective might be to improve the quality of service to our users, to be achieved through the rapid processing of all library materials, the ability to trace items quickly and the provision of adequate bibliographic access;
- another might be the development of our collections, for which we need to have available full information on our holdings, including the facility to retrieve and analyse information on their subjects, languages and costs;
- a third might be cost-efficiency, in which we might seek to maximise the use of staff by proper training, their better motivation through good management practices and a continuing review of routines and procedures;
- yet another, a pervasive objective, might be participation in co-operative schemes, where we aim to reduce costs and improve overall service by sharing our acquisition policies with other libraries.

None of these, of course, is necessarily linked to automation; and different libraries will set different priorities on these, or on others; but I would suggest that it is essential to set objectives in case the non-librarian sets them for you.

The human environment is obviously the most sensitive of these three areas. Staff is the most valuable resource we have, whether working on traditional card files or at online terminals; but there is sufficient experience of automation around to warn us that staff acquiescence to change cannot necessarily be taken for granted. May I list some of the commoner fears:

- "There is nothing wrong with what we do already";
- "Automation is an excuse for making staff redundant",
- "Automation cannot do everything a manual system can do".

We can find rebuttals for each of these; for example, the first and third Panglossian statements can be attacked by reference to the relative position of serials processing within the total library service. The second is less easy, although I am not sure that staff reduction is ever an overt objective these days. If there is a tradition of good management in the library, promises of redeployment or more rewarding work may satisfy staff fears. If management and morale are poor, staff may use the prospect of automation, whatever its advantages, as an excuse to chide the managers, by withdrawing good will, for example. But as I have said, staff are important: their fears need to be acknowledged by explaining the reasons for automation; their positive support in implementing change is crucial to its success, and can only be gained by consultation, sympathy and time. At the end, however, library management's job is to manage but in any critical path for implementing automation there has to be a component for staff involvement, just as there are components for systems analysis, tendering and testing.

These, then, are the major aspects to be considered in respect of serials automation: the perceptions of those who use and pay for libraries, the contribution automation is expected to make to the quality of service and the effect upon staff. I believe that we should aim to keep all three of these in balance, although the nature of that balance will, of course, vary from situation to situation.

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Nevertheless, there are great opportunities to be grasped in this field; the mistake of automating no more than what is already done should not be made, since automation opens all sorts of possibilities which deserve to be investigated. We have the potential to reconcile the importance which serials have in our libraries and to our service with the often severe problems which exist in handling them. I have not said very much about the technique of automation itself or, I hope, used any of its jargon. I have also tried to avoid referring to the minutiae of serials processing. But I hope I have given you an opening into the kind of considerations which libraries planning serials automation should be addressing.

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